

## ABSTRACT OF THE DISCLOSURE

Ions produced by radioactive gases present in air impact on the sensitivity of contamination measuring instruments which detect ions generated by radioactive materials present on an item. Methods and apparatus address this issue by conducting a measurement of ions generated in a chamber by gaseous emitters and other background events in a volume of medium and deducting this from a measurement of ions generated in another chamber by the item as well as the gaseous emitters and background events. The variation of the gaseous emitters present within the medium is addressed by moving the medium about. An alternative solution uses a medium free of gaseous emitters having a significant level, for instance by sealed storage of air prior to its use in a method and instrument.

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WORKMAN, NYDEGGER & SEELEY  
A PROFESSIONAL CORPORATION  
ATTORNEYS AT LAW  
1000 EAGLE GATE TOWER  
60 EAST SOUTH TEMPLE  
SALT LAKE CITY, UTAH 84111